

10/14/97



Jc494 U.S. PTO

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|-----------------------------------|---|--|
| DOCKET NUMBER 356952000100 | ANTICIPATED CLASSIFICATION OF THIS APPLICATION: CLASS * SUBCLASS * | PRIOR APPLICATION: 08/393,956 EXAMINER: B. Ledynh ART UNIT: 2103 |
|-----------------------------------|---|--|

71125 U.S. PTO
08/949850
10/14/97

AFWC

Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018

CERTIFICATE OF MAILING BY "FIRST CLASS MAIL"

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Assistant Commissioner for Patents, Washington, D.C. 20231, on October 10, 1997.

Oct. 10, 1997
Date

Patricia A. Johnson
Patricia A. Johnson

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**REQUEST FOR FILING CONTINUATION APPLICATION
UNDER 37 C.F.R. § 1.62**

Box FWC
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This is a Request for filing a continuation application under 37 C.F.R. § 1.62 of prior application Serial No. 08/393,956, filed on February 24, 1995 entitled PRESSURE SENSOR WITH TRANSDUCER MOUNTED ON A METAL BASE by the following inventor:

| | | | | |
|--|-------------------------|--|--|--|
| | FULL NAME OF INVENTOR | FAMILY NAME Solanki | FIRST GIVEN NAME Dinesh | SECOND GIVEN NAME |
| | RESIDENCE & CITIZENSHIP | CITY Santa Clara | STATE OR FOREIGN COUNTRY California | COUNTRY OF CITIZENSHIP United States |
| | POST OFFICE ADDRESS | POST OFFICE ADDRESS 2582 Elliot Court | CITY Santa Clara | STATE & ZIP CODE/COUNTRY California 95051 |
| | FULL NAME OF INVENTOR | FAMILY NAME Bryzek | FIRST GIVEN NAME Janusz | SECOND GIVEN NAME |
| | RESIDENCE & CITIZENSHIP | CITY Fremont | STATE OR FOREIGN COUNTRY California | COUNTRY OF CITIZENSHIP United States |
| | POST OFFICE ADDRESS | POST OFFICE ADDRESS 250 Linda Vista Terrace | CITY Fremont | STATE & ZIP CODE/COUNTRY California 94539 |

The above-identified prior application in which no payment of the issue fee, abandonment of, or termination of proceedings has occurred, is hereby expressly abandoned under 37 C.F.R. § 1.62(g) as of the filing date of this new application. Please use all the contents of the prior application file wrapper, including the drawings, as the basic papers for the new application (No new specification is required, 37 C.F.R. § 1.62(e)).

- ☐ Enter the unentered amendment previously filed on * under 37 C.F.R. § 1.116 in the prior application.
- ☒ A preliminary amendment is enclosed.
- ☒ A Petition for Extension of Time (3 months) is enclosed with check for \$950.00.
- ☒ The filing fee is calculated on the basis of the claims as amended by the enclosed preliminary amendment.

| FOR | NUMBER FILED | NUMBER EXTRA | RATE | CALCULATIONS |
|--|--------------|--------------|------------|--------------|
| TOTAL CLAIMS | 22 - 20 = | 2 | x \$22.00 | \$44.00 |
| INDEPENDENT CLAIMS | 3 - 3 = | 0 | x \$82.00 | \$0.00 |
| MULTIPLE DEPENDENT CLAIM(S) (if applicable) (37 C.F.R. § 1.16(d)) | | | + \$270.00 | \$0.00 |
| | | | BASIC FEE | \$790.00 |
| TOTAL OF ABOVE CALCULATIONS = | | | | \$834.00 |
| Reduction by 1/2 for filing by small entity (Note 37 C.F.R. §§ 1.9, 1.27, 1.28). | | | | \$0.00 |
| | | | TOTAL = | \$834.00 |

- ☐ Verified statement to establish small entity status under 37 C.F.R. §§ 1.9 and 1.27:
- ☐ is enclosed.
- ☐ was filed in the prior application serial no * filed * and such status is still proper and desired (37 C.F.R. § 1.28 (a)).
- ☒ A check in the amount of \$834.00 is enclosed.
- ☐ The Assistant Commissioner is hereby authorized to charge \$834.00 to **Deposit Account No. 03-1952**. A duplicate copy of this request is enclosed for that purpose.
- ☒ The Assistant Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required, or credit any overpayment to **Deposit Account No. 03-1952**.

☐ A new oath or declaration in compliance with 37 C.F.R. § 1.63 is included since this application is a continuation-in-part which discloses and claims additional matter.

☒ Amend the specification by inserting after the title the sentence:

- - This application is a continuation of application Serial No.
08/393,956, filed February 24, 1995, now abandoned. - -

☒ The prior application is assigned of record to Lucas Novasensor.

☒ Petition for Extension of Time (3 months).

☒ Also enclosed: return receipt postcard.

☒ Also enclosed is a *Revocation of Prior Power of Attorney and Power of Attorney and Prosecution by Assignee Under 37 C.F.R. § 3.71* for this application which is to:

| | |
|---------------------------------------|---|
| Thomas E. Ciotti (Reg No. 21,013) | Kate H. Murashige (Reg No. 29,959) |
| Gladys H. Monroy (Reg No. 32,430) | Debra A. Shetka (Reg No. 33,309) |
| Paul Schenck (Reg No. 27,253) | E. Thomas Wheelock (Reg No. 28,825) |
| Freddie K. Park (Reg No. 35,636) | Susan K. Lehnhardt (Reg No. 33,943) |
| Shmuel Livnat (Reg No. 33,949) | Tyler Dylan (Reg No. 37,612) |
| Antoinette F. Konski (Reg No. 34,202) | Harry J. Macey (Reg No. 32,818) |
| Stuart P. Kaler (Reg No. 35,913) | David L. Bradfute (Reg No. 39,117) |
| Robert Saltzberg (Reg No. 36,910) | Laurie A. Axford (Reg No. 35,053) |
| Mani Adeli (Reg No. 39,585) | Catherine M. Polizzi (Reg No. 40,130) |
| Sean Brennan (Reg No. 39,917) | J. Michael Schiff (Reg No. 40,253) |
| Robert K. Cerpa (Reg No. 39,933) | Ronald D. Devore (Reg No. 39,958) |
| Lee K. Tan (Reg No. 39,447) | Alan W. Cannon (Reg No. 34,977) |
| Madeline I. Johnston (Reg No. 36,174) | Dahna S. Pasternak (Reg No. P-41,411) |
| Stephen C. Durant (Reg No. 31,506) | Frank Wu (Reg No. P-41,386) |
| Hector Gallego (Reg No. P-40,614) | Barry E. Bretschneider (Reg No. 28,055) |
| Charles D. Holland (Reg No. 35,196) | Mark R. Carter (Reg No. 39,131) |
| Michael Hetherington (Reg No. 32,357) | Edward V. Donahue (Reg No. 35,492) |
| Thomas D. Mays (Reg No. 34,524) | Thomas G. Wiseman (Reg No. 35,046) |

☐ Recognize as Associate Attorney(s):

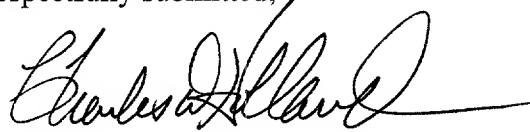
☒ Address all future communications (may only be completed by applicant, or attorney or agent of record) to:

Charles D. Holland
Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018

It is understood that secrecy under 35 U.S.C. § 122 is hereby waived to the extent that if information or access is available to any one of the applications in the file wrapper of a 37 C.F.R. § 1.62 application, be it either this application or a prior application in the same file wrapper, the

Patent and Trademark Office may provide similar information or access to all the other applications in the same file wrapper.

Respectfully submitted,



Dated: October 10, 1997

Charles D. Holland
Registration No. 35,196

Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018
Telephone: (650)813-5832
Facsimile: (650) 494-0792

Address of signator:

- ☐ Inventor
- ☐ Assignee of complete interest
- ☒ Attorney or Agent of record
- ☐ Filed under 37 C.F.R. § 1.34(a)
(no associate Power of Attorney given)

00949650 101497

Docket No. 35693000100

CERTIFICATE OF MAILING BY "FIRST CLASS MAIL"

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Oct. 10, 1997
Date

Patricia A. Johnson
Patricia A. Johnson



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

D. Solanki, *et al.*

Serial No.: Not Yet Assigned

Filing Date: October 10, 1997

For: PRESSURE SENSOR WITH
TRANSDUCER MOUNTED ON A
METAL BASE

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

TRANSMITTAL

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

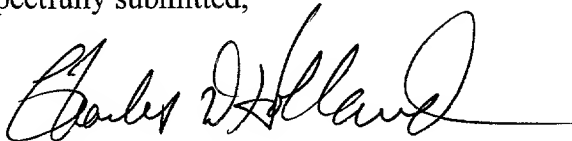
Enclosed please find the following:

1. Request for Filing Continuation Application Under 37 C.F.R 1.62;
2. Preliminary Amendment;
3. Revocation of Prior Power of Attorney and Power of Attorney, *et al.*
4. Petition for Extension of Time (3 months);
5. Check in the amount of \$834.00 (for continuation application fee);
6. Check in the amount of \$950.00 (for extension of time);
7. Return-receipt postcard.

The Assistant Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required by this transmittal, or to credit any overpayment, to **Deposit Account No. 03-1952**.

Dated: October 10, 1997

Respectfully submitted,

By: 

Charles D. Holland
Registration No. 35,196
Filed under § 1.34(a)

Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018
Telephone: (650)813-5832
Facsimile: (650) 494-0792

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OCT. 10, 1997
Date

Patricia A. Johnson
Patricia A. Johnson

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

D. Solanki, *et al.*

Serial No.: Not Yet Assigned

Filing Date: Not Yet Assigned

For: PRESSURE SENSOR WITH
TRANSDUCER MOUNTED ON A
METAL BASE

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This application is a file-wrapper continuing application of U.S. Ser. No.
08/393,956, filed Feb. 24, 1995. Please enter the following amendments:

In the specification:

At page 3, line 19, delete the phrase "needs these" and insert in its place the
phrase --meets these needs--;

At page 9, line 10, delete "22'" and insert --22'-- between the words "housing" and
"comprises";

In the claims:

Please cancel claims 4-18, 21, and 22.

Please insert the following new claims 23-44:

--23. A pressure sensor comprising:

a housing which includes a metal base and walls which are formed from a polymer material, the metal base and walls defining a chamber having a vent hole;
multiple leads extending into the chamber through the walls; and
a pressure transducer disposed in the chamber upon the metal base and electrically connected to at least one of the leads within the chamber;

wherein the vent hole allows the pressure transducer to be in communication with the pressure of the atmosphere outside the housing, and

wherein the metal base upon which the pressure transducer is disposed forms a portion of one of said multiple leads extending into the chamber through the walls.

24. The pressure sensor of claim 23,

wherein the base portion of the metal lead upon which the pressure transducer is mounted is a ground lead.

25. The pressure sensor of claim 23,

wherein the chamber walls define a shelf region internal to the chamber in which portions of the multiple leads are partially embedded and are partially exposed within the chamber; and

further including,

at least one wire bond that electrically connects the pressure transducer and an exposed portion of at least one of the leads.

26. The pressure sensor of claim 23, wherein the chamber is filled with a pressure transfer medium.

27. The pressure sensor of claim 26 further including at least one wire bond that electrically connects the pressure transducer and an exposed portion of at least one of the leads.

28. The pressure sensor of claim 27 wherein the walls extend about the base so as to leave exposed only a portion of the base interior to the chamber.

29. The pressure sensor of claim 28, wherein the base portion of the metal lead upon which the pressure transducer is mounted is a ground lead.

30. The pressure sensor of claim 29, wherein the chamber walls define a shelf region internal to the chamber in which portions of the multiple leads are partially embedded and are partially exposed within the chamber.

31. The pressure sensor of claim 23 wherein the chamber is filled with a silicone gel which serves as a pressure transfer medium.

32. The pressure sensor of claim 23 wherein the walls extend about the base so as to leave exposed only a portion of the base interior to the chamber.

33. The pressure sensor of claim 23 wherein the walls extend about the base so as to leave exposed portions of the base interior to the chamber and portions of the base exterior to the chamber.

34. A pressure sensor produced by the method comprising:
providing a metal lead frame with multiple leads;
downsetting at least a portion of one of the leads relative to other leads in a lead frame;

molding a polymer housing around the lead frame so as to produce walls that define a chamber having a transducer installation opening and through which walls the multiple leads extend and in which the downset portion is exposed inside the chamber so as to provide a metal base opposite the installation opening;

installing a pressure transducer in the housing by passing the transducer through the installation opening and securing the transducer to the base inside the chamber;

wire bonding at least one of the leads to the pressure transducer;

providing a pressure transfer medium within the chamber; and

securing a cap over the installation opening while providing a vent hole into the chamber.

35. The pressure sensor of claim 34, wherein the step of wire bonding includes:

heating the lead having the downset portion that serves as the base in order to heat the pressure transducer disposed thereon.

36. A pressure transducer housing comprising:
a metal base;
walls which are formed from a polymer material and which extend about the metal base and which define an opening opposite the metal base to allow access for installing a pressure transducer onto the metal base, wherein said opening allows communication of pressure from the atmosphere surrounding the pressure transducer housing with the metal base on which the pressure transducer is to be installed; and

multiple leads extending through the walls;

wherein the metal base upon which the pressure transducer is to be installed forms a portion of one of said multiple leads extending into the chamber through the walls, and

wherein the metal base has a first face upon which the pressure transducer is to be installed and a second face opposite the face upon which the pressure transducer is to be installed, and said second face is in contact with the atmosphere surrounding the pressure transducer housing.

37. The housing of claim 36 further comprising:

a cap that fits over the opening and a vent hole which allows communication of pressure from the atmosphere surrounding the pressure transducer housing with the metal base on which the pressure transducer is to be mounted.

38. The housing of claim 36 further comprising:

a cap that defines a vent hole and that fits over the opening.

39. The housing of claim 36 wherein the walls extend about the metal base so as to leave exposed only a portion of the base opposite the opening.

40. The housing of claim 36 wherein the base is formed from a downset lead extending through one of the walls.

41. The housing of claim 36 wherein the walls define a shelf region internal to the housing and opposite the opening in which portions of the multiple leads are partially embedded and are partially exposed opposite the opening.

42. The housing of claim 40, wherein the walls define a shelf region internal to the housing and opposite the opening in which portions of the multiple leads are partially embedded and are partially exposed opposite the opening.

43. The housing of claim 42, wherein the walls extend about the base so as to leave exposed only a portion of the base interior to the chamber.

44. The housing of claim 43, wherein the metal base upon which the pressure transducer is to be mounted is a ground lead.--

REMARKS

Claims 4-18, 21, and 22 have been canceled, and new claims 23-44 have been entered by this Preliminary Amendment. The amendments to the specification are made to correct obvious typographical errors. The amendments to the claims find support at, inter alia, p. 3 line 22 - p. 4 line 5 of Applicant's specification.

In the Office Action mailed April 10, 1997, the Examiner rejected claims 4-11 and 21-22 under 35 U.S.C. Sec. 112, second para., as being indefinite. These claims have been canceled and replaced with new claims 23-44. Cancellation of claims 4-11 and 21-22 renders this rejection moot; however, the new claims have been drafted to address the indefiniteness issues raised by the Examiner in the Office Action dated Apr. 10, 1997

In the Office Action mailed April 10, 1997, the Examiner also rejected claims 4-18 and 21-22 under 35 U.S.C. Sec. 103(a) as being unpatentable over Luetngen et al. (U.S. Pat. No. 4,850,227). The Examiner stated that

Luettgen et al. discloses the invention substantially the same as claimed: metal base 18 or 47a, wall 12, vent hole 31 or 34, cap 14 or 16, etc. However the reference does not disclose the walls being polymer and silicon gel.

Applicant respectfully disagrees. The Luettgen et al. patent does not suggest the combination of elements of Applicant's independent claims 23, 34, and 36. One feature not suggested by the Luettgen et al. patent is configuring the pressure sensor or housing so that the pressure transducer is or can be placed upon a lead which extends through a wall of the chamber. The Luettgen et al. patent discloses a pressure sensing element 32 bonded to a block of borosilicate glass, which is then in turn mounted and glued to a top surface of the bottom cover member 18. The metal or ceramic bottom cover member 18 is subsequently adhesively attached to the main housing member to close the bottom of chamber 22 and form a hermetic seal. *See* the Luettgen et al. patent, col. 6 lines 23-47. Luettgen does not suggest placement of the transducer on a lead. Since the Luettgen et al. patent does not suggest the combination of features specified in independent claims 23, 34, and 36, the Luettgen et al. patent cannot render these claims and their dependent claims obvious.

Even though other references such as the Ishibashi patent illustrate that a transducer attached to a pedestal can be placed on a lead, there is no suggestion to place a pressure transducer onto a lead without including a pedestal. The Takahashi et al. patent summarizes the reason that a pedestal is used:

[I]n order to produce an accurate pressure sensor, a silicon pedestal made of the same material as the material for the silicon chip or, of [sic] example, a pyrex glass pedestal having substantially the same linear expansion coefficient as that of the silicon chip is integrally molded with the silicon chip, the thus molded pedestal being die bonded to the lead frame or the stem so that the residual stress is reduced.

Takahashi et al. patent, col. 2 lines 6-13.

Other references support Takahashi's statement that a pedestal is needed to obtain accurate pressure measurement where the base upon which the pressure transducer is to be mounted is a lead. The references cited by the Examiner in the April 10, 1997 Office Action which illustrate a pressure transducer all note the presence of a pedestal upon which the pressure transducer is mounted (borosilicate glass 33 in the Luetzgen et al. patent, col. 6 lines 33-37; glass Pyrex block 1 in the Ishibashi patent, col. 4 lines 7-10; pressure sensor chip 1 is placed on a pedestal 5 and secured to the surface of a die pad 7, Takahashi et al. patent col. 3 lines 40-43; the Yamanaka patent discloses a charge-coupled device and not a pressure sensor).

Because all of the features of Applicant's claims 23-44 are not suggested in the Luetzgen et al. patent, this patent does not render claims 23, 34, and 36 obvious. The Ishibashi patent or like references also fail to suggest combining each of the features of Applicant's claims 23, 34, and 36. Since the references do not suggest Applicant's combination of features, Applicant's independent claims 23, 34, and 36 and their dependent claims are patentable over the references.

The Examiner's citation of the Ishibashi, Takahashi et al., and Yamanaka patents is noted. However, it is believed that these references are no more pertinent than what has already been discussed.

Applicant's claims are patentable over the cited references as noted above. In the event the Examiner believes that a discussion would facilitate resolving any questions or issues, the Applicant's representative is available for such discussion.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions

for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952**. However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: October 10, 1997

Respectfully submitted,

By:



Charles D. Holland
Registration No. 35,196

Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018
Telephone: (650)813-5832
Facsimile: (650) 494-0792

PATENT
Docket No. 356952000100

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In the application of:

D. Solanki, *et al.*

Serial No.: Not Yet Assigned

Filing Date: Not Yet Assigned

For: PRESSURE SENSOR WITH
TRANSDUCER MOUNTED ON A
METAL BASE

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

REVOCATION OF PRIOR POWER OF ATTORNEY AND
POWER OF ATTORNEY AND PROSECUTION BY ASSIGNEE
UNDER 37 C.F.R. § 3.71

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Lucas Novasensor, the assignee of the entire right, title and interest in this patent application, hereby revoke all Powers of Attorney previously granted relating to this application and appoint as its attorneys or agents, with full power of substitution, association, and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected herewith:

Thomas E. Ciotti (Reg No. 21,013)
Gladys H. Monroy (Reg No. 32,430)
Paul Schenck (Reg No. 27,253)
Freddie K. Park (Reg No. 35,636)
Shmuel Livnat (Reg No. 33,949)
Antoinette F. Konski (Reg No. 34,202)
Stuart P. Kaler (Reg No. 35,913)

Kate H. Murashige (Reg No. 29,959)
Debra A. Shetka (Reg No. 33,309)
E. Thomas Wheelock (Reg No. 28,825)
Susan K. Lehnhardt (Reg No. 33,943)
Tyler Dylan (Reg No. 37,612)
Harry J. Macey (Reg No. 32,818)
David L. Bradfute (Reg No. 39,117)

Robert Saltzberg (Reg No. 36,910)

Mani Adeli (Reg No. 39,585)

Sean Brennan (Reg No. 39,917)

Robert K. Cerpa (Reg No. 39,933)

Lee K. Tan (Reg No. 39,447)

Madeline I. Johnston (Reg No. 36,174)

Stephen C. Durant (Reg No. 31,506)

Hector Gallego (Reg No. P-40,614)

Charles D. Holland (Reg No. 35,196)

Michael Hetherington (Reg No. 32,357)

Thomas D. Mays (Reg No. 34,524)

Laurie A. Axford (Reg No. 35,053)

Catherine M. Polizzi (Reg No. 40,130)

J. Michael Schiff (Reg No. 40,253)

Ronald D. Devore (Reg No. 39,958)

Alan W. Cannon (Reg No. 34,977)

Dahna S. Pasternak (Reg No. P-41,411)

Frank Wu (Reg No. P-41,386)

Barry E. Bretschneider (Reg No. 28,055)

Mark R. Carter (Reg No. 39,131)

Edward V. Donahue (Reg No. 35,492)

Thomas G. Wiseman (Reg No. 35,046)

all of Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, California 94304-1018,

telephone: (650) 813-5600, to prosecute this application and transact all matters in the United States Patent and Trademark Office connected therewith, said appointment to be to the exclusion of the inventors and their attorneys in accordance with the provisions of 37 C.F.R. § 3.71.

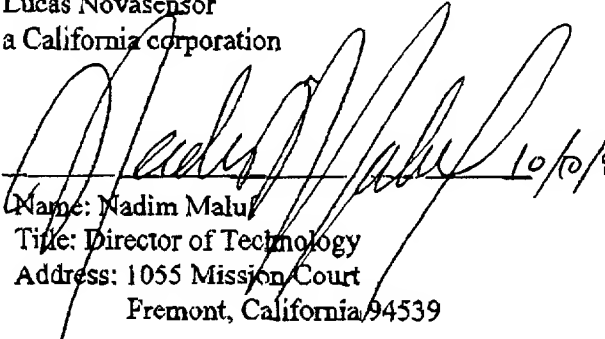
Please direct all communications relative to this application to:

Charles D. Holland
Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018

Please direct all telephone communications to Charles D. Holland at (650)813-5832.

Lucas Novasensor
a California corporation

Dated: October 10, 1997


Name: Nadim Maluf
Title: Director of Technology
Address: 1055 Mission Court
Fremont, California 94539